

What is claimed is:

1. A lockable, removable cassette for a banknote processor comprising:
a plastic shell having a single wall construction; and
a currency access door connected to the shell.
- 5 2. The apparatus of claim 1 wherein the cassette is at least one of a Nylon material, a PPO material, a Polypropylene material, a Polycarbonate material, an ABS material, and a Polyester material.
3. The apparatus of claim 1 wherein the cassette is made from a Polycarbonate and ABS blended material.
- 10 4. The apparatus of claim 1 wherein the walls are formed by at least one of Gas Assist Injection Molding, blow molding, rotational molding, Reaction Injection Molding and co-injection of two polymers.
5. The apparatus of claim 1 wherein at least a portion of the shell is combined with a reinforcing material.
- 15 6. The apparatus of claim 5 wherein the reinforcing material is at least one of a rigid material to impart strength and a soft material to improve shock absorption.
7. The apparatus of claim 1 wherein at least a portion of the shell is combined with a resilient material.
8. The apparatus of claim 1 wherein the plastic shell comprises a first cassette
20 portion and a second cassette portion joined together by a welding process.
9. The apparatus of claim 1 further comprising at least one of a flexible handle and an integrated grip.

10. The apparatus of claim 1 further comprising at least one of an aperture and a transparent window.

11. The apparatus of claim 10 further comprising an internal mechanism that is at least partially transparent.

5 12. The apparatus of claim 1 wherein the transport of banknotes is achieved primarily by rotating rollers.

13. The apparatus of claim 12 wherein the rotating rollers are formed by a 'two shot' injection molding process.

10 14. The apparatus of claim 12 wherein the rotating rollers comprise an inner core made from a rigid plastic and an outer tire made from a flexible material.

15. The apparatus of claim 1 wherein the currency access door remains secure even if a hinge pin is removed.

16. The apparatus of claim 15 wherein the currency access door remains secure even if a plurality of hinge pins are removed.

15 17. The apparatus of claim 1 further comprising a stacker mechanism.

18. The apparatus of claim 17 wherein the stacker mechanism comprises:
a stacker plate; and
a drive means coupled to the stacker plate, wherein the drive means includes non-circular drive gears.

20 19. A lockable removable cassette comprising:
a guide means; and
a latch means;

wherein if the cassette is not securely latched then a biasing means moves the cassette.

20. The apparatus of claim 19 further comprising at least one of a flexible handle and an integrated grip.

5 21. The apparatus of claim 19 wherein an unsecured cassette interferes with an access door of a host machine.

22. The apparatus of claim 19 further comprising at least one of an aperture and a transparent window.

23. The apparatus of claim 19 further comprising a stacker mechanism.

10 24. The apparatus of claim 23 wherein the stacker mechanism comprises:
a stacker plate; and
a drive means coupled to the stacker plate, wherein the drive means includes non-circular drive gears.

15 25. A lockable removable cassette comprising:
at least one guide;
at least one lug; and
at least one ramp;
wherein when the cassette is loaded into a chassis the guide mates with a chassis guide, the lug mates with a bias means and the ramp mates with a latch means such that if
20 the cassette is improperly loaded then the bias means moves the cassette away from the chassis.

26. The apparatus of claim 25 further comprising at least one of a flexible handle and an integrated grip.

27. The apparatus of claim 25 wherein a failure to securely latch the cassette to the chassis generates a mechanical interference with a door of a host machine.

28. The apparatus of claim 25 further comprising at least one of an aperture and a transparent window.

5 29. The apparatus of claim 25 further comprising a stacker mechanism.

30. The apparatus of claim 29 wherein the stacker mechanism comprises:
a stacker plate; and
a drive means coupled to the stacker plate, wherein the drive means includes non-circular drive gears.

10 31. A method comprising:
aligning guide means of a lockable removable cassette with a chassis guide means; and
pushing the lockable removable cassette with force sufficient to overcome the resistance of a biasing means to secure the cassette.

15 32. The method of claim 31 wherein if insufficient force is applied then the biasing means moves the lockable removable cassette away from the chassis.

33. The method of claim 32 wherein an unsecured cassette interferes with the closing of an access door of a host machine.

20 34. The method of claim 31 further comprising observing the contents of the lockable removable cassette through at least one of an aperture and a transparent window.

35. The method of claim 31 further comprising removing the lockable removable cassette by exerting a pull force sufficient to overcome a retention force.

36. A document processing system comprising:

a chassis;

a lockable removable cassette;

a latching means; and

a biasing means;

wherein if the cassette is not securely latched to the chassis then the biasing means moves the cassette.

37. The apparatus of claim 36 further comprising a banknote validator.

38. The apparatus of claim 36 further comprising a stacker mechanism.

39. The apparatus of claim 38 wherein the stacker mechanism comprises:

a stacker plate; and

a drive means coupled to the stacker plate, wherein the drive means includes non-circular drive gears.

40. The apparatus of claim 38 further comprising a single sensor that detects the installation of the lockable removable cassette and at least a home position of the stacker mechanism.

41. The apparatus of claim 40 wherein the sensor includes a light source, a light path means and a receiver.

42. The apparatus of claim 41 wherein the light path means comprises a light pipe having at least an input port, an interrupt position and an output port.

43. The apparatus of claim 42 wherein at least one interrupt portion is connected to a pusher plate of the stacker.

44. The apparatus of claim 42 further comprising a prism.

45. A method of constructing a lockable, removable currency cassette comprising:
molding the cassette according to a single walled injection molded design; and
connecting an access door to the cassette shell.

46. The method of claim 45, wherein the walls of the cassette are joined using a
5 thermoplastic welding technique.

47. The method of claim 46 wherein an electromagnetic field is used to provide
thermal energy to weld the walls.

48. A stacker mechanism comprising:
a stacker plate; and
10 a drive means coupled to the stacker plate, wherein the drive means includes non-
circular drive gears.

49. A stacker mechanism comprising:
a stacker plate;
a first scissor arm connected at a first end to the stacker plate;
15 a second scissor arm connected at a first end to the stacker plate, and pivotally
connected to the first scissor arm about a scissor pivot point located approximately at the
center of the length of the first scissor arm; and
a link arm for driving the stacker plate, the link arm connected to the first scissor
arm at a pivot point located between the scissor pivot point and a second end of the first
20 scissor arm.

50. The apparatus of claim 49 further comprising a drive means coupled to the link
arm and having non-circular drive gears.